

Amendments to the Claims:

1. (Currently Amended) ~~Process A process~~ for purification of an acidic monomer having a double bond, comprising the steps of:
 - (a) providing a starting mixture, containing as starting mixture components, respectively based on the starting mixture,
 - (a1) at least about 5 wt.% of the acidic monomer and either
 - (a2) at least about 0.01 wt.% water, or
 - (a3) at least about 0.01 wt.% of at least one starting mixture component, or

(a2) and (a3)

wherein the sum of the wt.% proportions of the starting mixture components gives respectively 100 wt.%;
 - (b) ~~addition of adding~~ a phase former or a salt of this phase former or a mixture of both to obtain a purification mixture, from which
 - (c) at least one first phase and an at least one further phase distinguished from the first phase by means of a phase boundary form a phase system;
 - (d) lowering of the temperature of the phase system; wherein
 - (e) in one of the phases of the phase system a product crystal containing at least about 50 wt.% of one of the starting mixture components is formed in addition to another starting mixture component as a crystal system;
 - (f) ~~isolation of isolating~~ the product crystals.
2. (Currently Amended) ~~Process The process~~ according to claim 1, wherein the temperature is ~~only~~ lowered in only one phase of the phase system.
3. (Currently Amended) ~~Process The process~~ according to claim 2, wherein the temperature is lowered in the most monomer-rich phase of the phase system.
4. (Currently Amended) ~~Process The process~~ according to ~~one of the preceding claims~~ claim 1, wherein the acidic monomer has a pH value of less than about 7.

5. (Currently Amended) ~~Process~~ The process according to ~~one of the preceding claims~~ claim 1, wherein the acidic monomer is (meth)acrylic acid.

6. (Currently Amended) ~~Process~~ The process according to ~~one of the previous claims~~ claim 1, wherein the phase former is a Brönsted acid with a pH value of less than 6 or a salt of a Brönsted acid or a mixture thereof.

7. (Currently Amended) ~~Process~~ The process according to claim 6, wherein the Brönsted acid is sulphuric acid or one of its salts or a mixture thereof.

8. (Currently Amended) ~~Process~~ The process according to ~~one of the preceding claims~~ claim 1, wherein the phase former is liquid at the time of addition.

9. (Currently Amended) ~~Process~~ The process according to ~~one of the preceding claims~~ claim 1, wherein the purification mixture contains the phase former in a quantity in the range from about 1 to about 80 wt.%, based on the purification mixture.

10. (Currently Amended) ~~Process~~ The process according to ~~one of the preceding claims~~ claim 1, wherein at least one part of the phase former is recovered after formation of the phase systems and reused in step (b) of the starting mixture.

11. (Currently Amended) ~~Process~~ The process according to ~~one of the preceding claims~~ claim 1, wherein the crystal system or the isolated monomer crystal or both are subjected to at least one further purification step.

12. (Currently Amended) ~~Device~~ A device for synthesis of an acidic monomer [(1)] having a double bond, having in fluid conducting association as components:

as a monomer synthesis unit [(2)] having a gas phase monomer synthesis unit [(2a)] or a liquid phase monomer synthesis unit [(2b)],
a quench unit [(3)] following the gas phase monomer synthesis unit [(2a)],
optionally a first purification unit [(4)] following the liquid phase monomer synthesis unit [(2b)] or the quench unit [(3)],

a first extraction unit [(5)], having as components:
a starting mixture conduit [(6)] connected to the liquid phase monomer synthesis unit [(2b)]
or to the quench unit [(3)] or with the optionally available first purification unit [(4)],
a phase former conduit [(7)],
an extraction container [(8)] accommodating the starting mixture conduit [(6)] and the phase
former conduit [(7)],
optionally a further extraction unit [(9)] connected to the first extraction unit [(5)]
or a further purification unit [(10)] or both.

13. (Currently Amended) ~~Device~~ The device according to claim 12, wherein the
gas phase monomer synthesis unit [(2a)] has at least one reactor (~~11, 12~~).

14. (Currently Amended) ~~Device~~ The device according to claim 13, wherein at
least one of the reactors has a supported transition metal oxide catalyst [(13)].

15. (Currently Amended) ~~Device~~ The device according to ~~one of claims~~ claim 13
~~or 14~~, wherein at least one of the reactors is a gas phase reactor.

16. (Currently Amended) ~~Device~~ The device according to ~~one of claims~~ claim 12
~~to 15~~ with the first purification unit [(4)] following the quench unit [(3)], wherein the first
purification unit [(4)] has a distillation column.

17. (Currently Amended) ~~Device~~ The device according to claim 16, wherein the
distillation column has a column bottom [(14)], which is connected to the starting mixture
conduit [(6)].

18. (Currently Amended) ~~Device~~ The device according to claim 17, wherein the
distillation column has a column head [(15)] in its upper portion, which is connected to the
starting mixture conduit [(6)].

19. (Currently Amended) ~~Device~~ The device according to ~~one of claims~~ claim 12
~~to 18~~, wherein a cracking device [(16)] for oligomers of the acidic monomer is attached to the
first purification unit [(4)].

20. (Currently Amended) ~~Device~~ The device according to claim 19, wherein the cracking device [(16)] has a cracking device bottom [(17)] in its lower portion, which is connected to the starting mixture conduit [(6)].

21. (Currently Amended) ~~Device~~ The device according to ~~one of claims~~ claim 12 ~~to 20~~ with the first purification unit [(4)] following the quench unit [(3)], wherein the first purification unit [(4)] is a crystal generator.

22. (Currently Amended) ~~Process~~ A process for producing an acidic monomer having a double bond, wherein a synthesis mixture coming out of at least one reactor and containing the acidic monomer and at least one synthesis component is contacted with water and optionally after at least one further workup step is supplied as a starting mixture to a process according to ~~one of claims~~ claim 1 ~~to 9~~.

23. (Currently Amended) ~~Process~~ The process according to claim 20, wherein the acidic monomer is obtained in the at least one reactor by oxidation of a hydrocarbon having at least one double bond.

24. (Withdrawn) Process according to one of claims 20 or 21, wherein a device (1) according to one of claims 12 to 21 is used for carrying out the process.

25. (Currently Amended) An acidic Acidic monomer obtainable according to a process according to ~~one of claims~~ claim 22 ~~to 24~~.

26. (Currently Amended) Fibres Fibers, formed bodies, films, foams, superabsorbent polymers, special polymers for the areas of waste water treatment, dispersion dyes, cosmetics, textiles, leather finishing or paper producing or hygiene articles, at least based on or containing an acidic monomer according to claim 25.

27. (Currently Amended) Use of an acidic monomer according to claim 25 in or for producing ~~fibres~~ fibers, formed bodies, films, foams, superabsorbent polymers or hygiene articles, detergents or special polymers for the areas of waste water treatment, dispersion dyes, cosmetics, textiles, leather finishing or paper producing.